CIRC ACCESSION NO--AP0133009

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF RARE EARTH METALS
ON THE MECHANICAL PROPERTIES OF C AND ALLOY STEELS WERE STUDIED. THE
INTRODUCTION OF RARE EARTH ELEMENTS INTO ANY OF THE STEELS REDUCED THE
CRITICAL BRITTLENESS TEMP. AND RAISED THE IMPACT STRENGTH (TOUGHNESS);
IT ALSO TENDED TO RAISE THE FATIGUE STRENGTH. THE INTRODUCTION OF
0.2PERCENT RARE EARTH METALS INTO ONE TYPE OF INDUSTRIAL STEEL REDUCED
THE S CONTENT BY NEARLY 30PERCENT. A STILL GREATER EFFECT ON S CONTENT
WAS ACHIEVED ON INTRODUCING 0.3PERCENT; HOWEVER, FROM GENERAL
CONSIDERATIONS 0.2PERCENT CONSTITUTED THE NORMAL LIMIT.

UNCLASSIFIED

TITLE--MECHANICAL PROPERTIES OF INDUSTRIAL STEELS CONTAINING RARE EARTH
   METALS -U-

AUTHOR-(04)-GLADKIKH, A.N., GURASHOV, V.N., SKUDNOV, V.A., SOKOLOV, L.D.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970. (3), 31-4

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--RARE EARTH METAL, MECHANICAL PROPERTY, ALLOY DESIGNATION,
   MISCH METAL, STRUCTURAL STEEL, LANTHANUM, NEODYMIUM, SULFUR, METAL
   BRITTLENESS, IMPACT STRENGTH/(U)L9 STRUCTURAL STEEL, (U)L10 STRUCTURAL
   STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0015   STEP NO--UR/0129/70/000/003/0031/0034

CIRC ACCESSION NO--AP0119011
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0119011

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STEELS L9 AND L10 WITH ADDED RARE
    EARTH ELEMENTS (FE-CE, MISCH METAL, ND, LA, AND LA OXIDES) WERE MELTED
    ON A LAB. SCALE AND UNDER INDUSTRIAL CONDITIONS. ON THE LAB. SCALE THE
    DEOXIDN. WAS CARRIED OUT WITH FE-SI, AND SI-CA. THE RARE EARTH
    ADDITIVES WERE INTRODUCED AT THE BOTTOM OF A LADLE BY MEANS OF A ROD
    DURING THE TAPPING OPERATION AT 1560-90DEGREES. INGOTS WERE FORGED INTO
    RODS, DIAM. 20 MM. INDUSTRIAL MELTS WERE PRODUCED IN AN ELEC. FURNACE,
    DEOXIDIZED IN THE SAME WAY AS IN LAB. EXPTS. ALL SPECIMENS WERE
    NORMALIZED AT 910-40DEGREES, THEN QUENCHED AT 880-900DEGREES, AND
    TEMPERED AT 650DEGREES. THE INTRODUCTION OF RARE EARTH ELEMENTS RESULTS
    IN THE LOWERING OF THE CRIT. TEMP. OF BRITTLENESS, AND IN THE INCREASE
    OF IMPACT AND CYCLIC STRENGTH. THE INTRODUCTION OF 0.15-0.20PERCENT
    RARE EARTH ELEMENTS CAUSED A DECREASE (BY 27PERCENT) OF S CONCN. IN
    STEEL L9. THIS WAS PARTICULARLY EFFECTIVE WITH FECE AT 0.3PERCENT
    LEVEL. INCREASE OF RARE EARTH ELEMENTS ADDN. TO GREATER THAN
    0.20PERCENT CAUSED A DETERIORATION OF STEEL PROPERTIES.
FACILITY: GOR'K. POLITEKH. INST., GORKI, USSR.

UDC 620.17:669.14.018.29

USSR

GLADKIKH, A. N., GURASHOV, V. N., SKUDNOV, V. A. and SOKOLOV, L. D. (Krasnoye Sormovo Plant, Gor'ki Polytechnic Institute)

"Mechanical Properties of Industrial Steels with Rare Earth Metals"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 31-34

Abstract: An investigation was made of the effect of the addition of rare earth metals on the properties of 50G, Kh17N2, 09G2, 08KP, U7, U13, 60S2, and 18KhGSN2M steels (L9 and L10). Ferrocerium, neodymium, lanthanum, and lanthanum oxides were used as alloying additives. Laboratory and industrial samples of steels were normalized at 910-940°C, then hardened at 880-900° and tempered at 660-680°. Mechanical properties were investigated at -196 to 900°C, and at various strain rates. The results are presented in graphs, which show the effect of various rare earth metals on ductility. They show that: the addition of rare earth metals lowers the brittleness critical temperature, while the ductility and cyclical strength of steels increase; the sulfur content decreases; and the addition of more than 0.20% of rare earth metals impairs the steel properties. 5 figures.

1/1

GORASHVILI VA.

JPRS 0163?
2 April 1974

HIGHLY EFFICIENT SUPERSONIC NONEQUILIBRIUM MHD GENERATOR

The purpose of this article is to prove experimentally the feasibility of effective MHD-deceleration of plasma with nonequilibrium conductivity and high output power ($\sim 10^6$ W).

Similar investigations are also being conducted in the U.S. [1, 2], where it has been shown that up to 10% of the enthalpy of plasma flow can be drawn off as electricity. The release of 20-30% enthalpy should trigger physical limitations (formation of shock waves, internal shorts in the MHD channel, boundary layer separation near the cathode wall, etc.).

In this connection an extensive arsenal of the tools of diagnosis (high-speed photography of the entire field of flow through completely transparent channel walls, measurement of the distribution pattern of potentials and currents in the channel, spectroscopic measurements of plasma parameters, measurement of static pressure distribution in the channel) was used in this work for complete explanation of the physical pattern of MHD-deceleration.

The studies were conducted in the "Udarnaya truba" [shock tube] installation using a medium (Ar + 0.1% Cs) with the following deceleration parameters: temperature from 5,000 to 7,500°K, pressure from 10 to 50 atm, mass flow rate from 1.5 to 3 kg/s, and flow duration of 1.5-2 ms.

The MHD channel was attached to the end of a low-pressure chamber with a diameter of 15 cm and had a critical cross section of 4.0 × 4 cm, so that the gas flowed into the channel from the region behind the reflected shock wave. The channel expanded in one plane (the height along the magnetic field was 4 cm), entrance width was 10 cm, exit width was 17 cm and the length was 60 cm. The insulation walls were made of organic glass. The magnetic field for these channel dimensions was homogeneous in space with an accuracy of up to 5%; the time variation of the pulsed

- i -

[I - USSR - L]

UNCLASSIFIED   PROCESSING DATE--20NOV70

1/2   027

TITLE--LIMITING CHARACTERISTICS OF A MAGNETOHYDRODYNAMIC GENERATOR WITH
  NONEQUILIBRIUM PLASMA -U-

AUTHOR-(02)-GUBAREV, A.V., GURASHVILI, V.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSR: ENERGETIKA I TRANSPORT, NO 1,
  1970, PP 167-170

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETOHYDRODYNAMICS, ELECTRON, TURBULENT PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1322   STEP NO--UR/0281/70/000/001/0167/0170

CIRC ACCESSION NO--AP0123281

UNCLASSIFIED

CIRC ACCESSION NO--AP0123281

ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   USING KNOWN ENERGY BALANCE
RELATIONSHIPS FOR ELECTRONS AND THE DEPENDENCE OF THE CONDUCTIVITY OF
TURBULENT PLASMA ON THE HALL PARAMETER, THE AUTHORS OBTAIN USEFUL
RELATIONSHIPS WHICH MAKE IT PUSSIBLE TO ESIMATE LIMITING PARAMETERS OF A
MAGNETOHYDRODYNAMIC GENERATOR OPERATING ON NONEQUILIBRIUM PLASMA.   IT IS
SHOWN THAT, IN THE CASE OF ARGON WITH AN ADMIXTURE OF CESIUM VAPOR AND
AT AN ELECTRIC LOADING COEFFICIENT OF 0.8, MAXIMUM PRESSURE IN THE
REACTOR SHOULD NOT EXCEED 100 ABSOLUTE ATMOSPHERES EVEN AT THE PRESENT
WITH THE FOLLOWING LIMITING FACTORS: A GAS TEMPERATURE OF SIMILAR TO
250CDEGREESK AT THE REACTOR OUTPUT, MAGNETIC FIELD INDUCTANCE OF SIMILAR
TO 10TL, AND AT POWER OF 3DEGREES 10DEGREESKW OF ONE CHANNEL OF THE
MAGNETOHYDRODYNAMIC GENERATOR.   IT IS SHOWN THAT THE LIMITING
PERMISSIBLE REACTOR PRESSURE IS DECREASED FROM 70 TO 20 ABSOLUTE
ATMOSPHERES BY DECREASING THE M NUMBER FROM 2.0 TO 0.5.   RAISING INITIAL
TEMPERATURE AND THE CONSTANTS OF THE REMAINING PARAMETERS DECREASES THE
LIMITING POWER VALUE FOR THE INDIVIDUAL AGGREGATE.

UNCLASSIFIED

GURAUSKAS, V. B.

UDC: 614.881-07:681.3

USE OF COMPUTERS IN THE EMERGENCY MEDICAL SERVICE

The emergency medical service is of primary significance in the public health system, since the people's needs for such service should be met fully and promptly.

In order to respond to calls promptly and render good care to the sick and victims of accidents it is necessary to use better and more effective forms of organization of the work of different elements of the emergency station. This requires up to date, objective, and sufficient information about the different work indices, possible only by using computers.

In order to assess the work at the emergency station of Vilnius, whose volume of work is increasing annually (see Table), the Minsk-22 computer has been used since 1968. The basic principle of the system is as follows. Information is gathered according to developed primary record forms which are needed due to the nature and scope of routine operation for the stations administrators, statistical reports, and management bodies. The primary forms of work records are the emergency call card (form No 252a) the latent variant of which has been used at the emergency stations of Vilnius and Kaunas with the permission of the office of health statistics of the USSR Ministry of Health since 1 January 1971; report of the senior physician on duty of the shift; medical personnel record card; dispatcher's report about operation of ambulances during this shift; stub (form No 254) to assess the quality of diagnostics; a record dealing with expenditure of budget resources over a period of one month.

On-duty dispatchers, senior physician for the shift, and the doctors or medical feldshers of all teams on duty that respond to calls independently take care of coding data on the primary record forms.

JPRS 57825
2 Jan 73

USSR

UDC 547.313.:66.062.539.094.404

SHABANOV, A. L., MOVSUMZADE, M. M., MOVSUMZADE, S. M., and GURBANOV, P. A.,
Azerbaydzhan Petroleum and Chemical Institute imeni M. Azizbekov

"Conjugated Bromination of Oxirane-Olefin Mixtures. I. Synthesis of 2,2'-Dibromoalkyl Ethers"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 6, Jun 71, pp 1109-1110

Abstract: By the conjugated bromination in CCl_4 at 0-5° of ethylene oxide and
ethylene that was passed through the reaction mixture, 2,2'-dibromodiethyl
ether (b. 56-59°/2 mm) was prepared with a yield of 66.4%. By applying the
same reaction of conjugated bromination, 2,2'-dibromoethers were prepared from
trimethylethylene and cyclohexene oxide, trimethylethylene and cyclopentene
oxide, 1-methylcyclohexene and cyclopentene oxide, and styrene and cyclo-
hexene oxide with a yield of 41.4 (b. 126°/2 mm), 85.4 (b. 132-4°/2 mm), 72.6
(b. 101-2°/2 mm), and 74.0% (b. 181.3°/2 mm), respectively. Addition to the
double bond proceeded according to the Krasuskiy rule. On conjugated chlorina-
tion of ethylene oxide together with ethylene in CCl_4 at minus 10 - 0°, 2,2'-
-dichlorodiethyl ether was obtained with a yield of 90% vs. 45% when chlorina-
tion of the same substances was carried out without a solvent, as indicated in
French Pat. 713140, Chem. Abs. 1, 3476 (1935)
1/1

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USSR

UDC 547.313:66.062.539.094.404

MOVSUMZADE, M. M., SHABANOV, A. L., MOVSUMZADE, S. M., and GURBANOV, P. A.,
Azerbaydzhan Petroleum and Chemical Institute imeni M. Azizbekov

"Conjugated Bromination of Oxirane-Olefin Mixtures. I. Synthesis of Cyclic
2,2'-Dibromethers"

Abstract: By the action of Br_2 on a mixture of cyclohexene with cyclohexene
oxide in CCl_4, 2,2'-dibromocyclohexyl ether (I; b. 155-6°/2 mm) was prepared
with a good yield. With increasing molar ratios of cyclohexene oxide to
cyclohexene, the maximum yield of I (71.2%) was reached at the ratio of 8:1.
Changing of the reaction temperature in the minus 10 - plus 50° range or
carrying out the reaction in a different solvent ($HCCl_3$, ether, or hexane)
did not alter the yield significantly. Similarly, conjugated bromination of
cyclopentene oxide and cyclopentene, cyclohexene oxide and cyclopentene or
cyclopentene oxide and cyclohexene, cyclohexene oxide and 1-methylcyclopentene,
and cyclohexene oxide and 1-methylcyclohexene led to the formation of 2,2'-
dibromodicyclopentyl ether (60.8%, b. 116-17°/2 mm), 2-bromocyclopentyl-2-
-bromocyclohexyl ether (82.8%, b. 129-30°/2 mm), 2-bromo-1-methylcyclopentyl-
-2-bromocyclohexyl ether (68.4%, b. 132-4°/mm), and 2,2'-dibromo-1-methyl-
dicyclohexyl ether (71.7%, b. 150-3°/2mm), respectively. Dibromides of the
olefins used formed as byproducts of the conjugated bromination.
1/1

USSR   UDC 911.3:61:001.8(4/9)

FILATOV, V. G., GURBO, G. D., MALYSHEV, V. A., and LEVOSHIN, O. A.

"Research Materials on the Landscape Epidemiology of Several Neighboring
Regions in the Urals and Western Siberia"

V sb. Materialy XV Vses. s'ezda epidemiologov, mikrobiologov i infektsionistov,
Tezisy Dokl. Ch. 1 (Proceedings of the 15th All Union Congress of Epidemiolo-
gists, Microbiologists and Infectious Disease Specialists, Theses Reports,
Part 1 -- collection of Works), Moscow, 1970, pp 100-102 (from RZh-Meditsin-
skaya Geografiya, No 2, Feb 71, Abstract No 2.36.53)

Translation: Natural foci of zooanthroponoses in the Chelyabinsk, Tyumensk,
and partially in Sverdlovsk regions are discussed. Tickborne encephalitis,
Omsk hemorrhagic fever, rabies, North Asian tickborne scrub typhus Q-fever,
tularemia, leptospirosis, toxoplasmosis, and helminthosis are included. The
problem of a detailed regional, epidemiological classification of the terri-
tory under consideration is discussed.

1/1

TITLE--CORRELATION BETWEEN AVAILABLE PHOSPHATES DETERMINED BY VARIOUS
METHODS AND THE FRACTIONAL COMPOSITION OF INORGANIC PHOSPHATES -U-

AUTHOR-(03)-GURBUCHEV, I., NEYKOVABOCHEVA, YE., URUMOVA, A.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (2), 23-9

DATE PUBLISHED-------70

SUBJECT AREAS--AGRICULTURE, CHEMISTRY

TOPIC TAGS--PHOSPHATE, SOIL CHEMISTRY, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1628   STEP NO--UR/0485/70/000/002/0023/0029

CIRC ACCESSION NO--AP0127119
                         UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127119
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE CORRELATION COEFF. BETWEEN THE
ACTIVE FRACTIONS OF INORG. PHOSPHATES ACCORDING TO CHANG AND JACKSON
(1957) AND THE CONTENTS OF 5 SOILS OF THE BULGARIAN TYPE IN EXCHANGEABLE
(MOBILE) PHOSPHATE WAS ESTABLISHED BY 7 DIFFERENT METHODS.   NH SUB4 F
FRATIONATION IS A MOST SIGNIFICANT INDICATOR OF P RESERVES FOR PLANT
NUTRITION.   THE METHOD OF OLSEN IS MOST APPROPRIATE FOR ESTG. THE MOBILE
P IN CARBONATE AS WELL AS IN OTHER SOILS ENRICHED IN P.
FACILITY: INST. POCHVOVED. IM. PUSHKAROVA, SOFIA, BULG.

UNCLASSIFIED

TITLE--EFFECT OF THE COMPOSITION OF LIMESTONES ON THE QUALITY OF MILK OF
    LIME IN THE PRODUCTION OF MAGNESIUM OXIDE FROM SEA BRINE -U-

AUTHOR-(04)-GURCHINOVA, L.N., SAVENKOV, M.I., KIRICHENKO, T.P., IVANOVA,
    G.M.

COUNTRY OF INFO--USSR

SOURCE--OGNEUPORY 1970, 35(2), 15-17

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--LIMESTONE, MAGNESIUM OXIDE, SEA WATER, BRINE, LIME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0980   STEP NO--UR/0131/70/035/002/0015/0017

CIRC ACCESSION NO--AP0118049
                         UNCLASSIFIED

CIRC ACCESSICN NO--AP0118049
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY WAS DETD. OF USING
LIMESTONES OF VARIOUS QUALITIES FOR PRODUCING MGO FROM BRINES. QUALITY
AND YIELD OF PURIFIED PRODUCT DEPEND PRIMARILY ON THE MINERAL AND CHEM.
COMPNS. OF THE LIMESTONES AND DEGREE OF CALCINATION. THE QUALITY OF
MILK OF LIME FROM GANGUE LOADED MATERIALS CAN BE INCREASED BY A 2 STAGE
TREATMENT OF THE MILK OF LIME THROUGH HYDROCYCLONES AFTER INITIAL SAND
REMOVAL.   FACILITY: UKR. NAUCH.-ISSLED. INST. OGNEVPOR. KHARKOV,
USSR.

UNCLASSIFIED

· USSR

UDC 576.85(478)

MARITS, A. A., CHASHCHINA, I. N., CHERVINSKAYA, S. I., ELKIS, K. U., KORNES, R. V., BELYAYEVA, N. S., CHEBAN, Ye. D., KOTSEFAN, A. S., DOBRUSKINA, S. V., GURCHIOGLUYANTS, L. V., and MIKHAYLOVA, A. A., Moldavian Scientific Research Institute of Hygiene and Epidemiology and Kishinev Sanitary Epidemiological Station

"Fermentation Reaction Types and Colicinogenic Properties of Shigella Sonnei Circulating in the City of Kishinev, and Determining Their Sensitivity to Antibiotics"

Abstract: The Shigella sonnei strain accounted for 97.9-99 percent of the cases of dysentery in Kishinev in 1963-70. The object of this study was to identify the types of fermentation reactions of Shigella sonnei isolated in 1963-70 (4,507 cultures), and to study their colicinogenic properties and sensitivity to antibiotics. Shigella bacilli isolated from victims in 1968 were found to be primarily fermentation type II (71.4 percent); in 1969-70, type I bacilli predominated (65.4-94.1 percent); Shigella type III was most frequently isolated from the healthy. The results of studies on colicin production showed that, of 922 cultures, 842 were inactive with respect to E. coli K-12 and E. coli B and ϕ; 76 cultures were colicin type K-12; 4, colicin type ϕ.

1/2

USSR

MARITS, A. A., et al., Zdravookhraneniye, No 5, Sep/Oct 71, pp 7-9

Among the K-12 type cultures, 54 percent were fermentation type I; 44.8 percent were type II; and 1.2 percent were type III. The cultures isolated in 1969 exhibited a gradual decrease of strains sensitive to levomycetin, and a growing number of strains sensitive to neomycin and monomycin.

2/2

- 30 -

7

USSR   UDC 616.935:576.8

MARTIS, A. A., CHASHCHINA, I. N., CHERNINSKAYA, S. I., _____ ___ __, _____,
N. S., CHEBAN Ye. D., _____, A. S., KORNES, R. B., _____, __ __,
GURCHICGLUTANIS, L. V., and _____VA, A. A., Moldavian Scientific Research
Institute of Hygiene and Epidemiology, and Kishinev Sanitary Epidemiological
Station

"Enzymatic Types of Sonnei Dysentery Pathogens Circulating in Kishinev"

Kishinev, Zdravookhranenie, No 3, May/June 1970, pp 43-49

Abstract: The number of Sh. Sonnei strains isolated in Kishinev in 1968 was more
than four times greater than in 1959. Many healthy individuals are carriers of
these bacteria. A total of 1,714 cultures of Shigella Sonnei were investigated to
determine their morphological, peptolytic, antigenic, and other properties,
including their ability to ferment sugars to acids. Pathogens were classified into
three enzymatic types. Type I -- cultures ferment rhamnose within the first 24
hours of incubation at 37°C, but do not ferment xylose for a week; type II --
cultures ferment rhamnose with a delay (after three to four days), or do not fer-
ment either rhamnose or xylose; type III -- cultures ferment both sugars within
the first 24 hours. Of the 1,714 cultures investigated, 71.4% belonged to type II,
21.5% to type I, and 7.1% to type III. The tests are fairly easy and can be per-
formed in routine clinical laboratories.
1/1

1/2   014   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--MECHANISM OF THE REDUCTION AND HYDROXYLATION OF
   ANTHRAQUINONE-2-SULFONATES IN ALKALINE SOLUTIONS --U-
AUTHOR-(03)-FOMIN, G.V., GURDZHIYAN, L.M., BLYUMENFELD, L.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK. SSSR 1970, 191(1), 151-4, PHYS CHEM

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL REDUCTION, ANTHRAQUINONE, SULFONE, PHOTOLYSIS,
   HYDROXYL RADICAL, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1083   STEP NO--UR/0020/70/191/001/0151/0154

CIRC ACCESSION NO--AT0124740
                        UNCLASSIFIED

CIRC ACCESSION NO--AT0124740
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC CURVES WERE SHOWN FOR
   ACCUMULATION OF ION RADICALS IN PHOTOLYTIC AND DARK REACTIONS WITH OR
   WITHOUT ADDED C_6H_6 BETWEEN ANTHRAQUINONE,2,SULFONATE AND HO
   PRIME NEGATIVE ION. THE MAX. CONCN. OF ANION RADICALS IN THE ABSENCE OF
   C_6H_6 IN THE PHOTOREACTION WAS 50-60PERCENT OF THE INITIAL
   CONCN., AND IN THE DARK REACTION IT REACHED 5-6PERCENT. WITH C_6H_6
   THESE WERE NEARLY 100PERCENT AND 10-12PERCENT RESP. A REACTION
   SCHEME WAS SUGGESTED.   FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

USSR   UDC:621.791.052:669.14.018.8:620.17

GURDZINSKIY, B. V., STEPANOV, G. A., YATSKOV, A. P., SKOL'TSOV, V. I.

"Influence of Pore Penetration on Strength of Welded Joints of Kh18N10T
Steel at Cryogenic Temperatures"

Abstract: Failure of welding heat to penetrate the depth of a seam
produces a stress concentrator on the cold side of the seam which can
be very effective. Specimens of Kh18N10T sheet steel were tested at
-196° C to determine the influence of stress concentration on the
properties of this metal at this temperature. The reduced ductility
of the welded seam at this temperature significantly increases the in-
fluence of penetration failures on the strength of a seam. Strength
drops by 10-15%. Local failures serve as centers of formation and
development of fatigue cracks.

1/1

TITLE--COMPARATIVE ASSESSMENT OF IMMUNOLOGICAL EFFICACY OF ADPC VACCINES
    WITH VARIOUS QUANTITATIVE CONTENT OF COMPONENTS IN PRIMARY IMMUNIZATION

AUTHOR-(5)-KHEYFETS, L.B., SALMIN, L.V., SEGAL, L.S., BRUSINA, L.I.,
    GUODZIANTS, E.M.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR
    4, PP 134-140

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IMMUNIZATION, VACCINE, TETANUS TOXOID, DIPTHERIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1485   STEP NO--UR/0016/70/000/004/0134/0140

CIRC ACCESSION NO--AP0109545
                         UNCLASSIFIED

- 2/2   024
CIRC ACCESSION NO--AP0109545
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS CARRIED OUT A STRICTLY
CONTROLLED FIELD TRIAL ON COMPARISON OF THREE VARIETIES OF AKDC VACCINE,
DIFFERING BY CONTENT OF THE VACCINAL DOSE OF DIPHTHERIA, TETANUS AND
PERTUSSIS COMPONENTS. BLOOD SERA OBTAINED BEFORE THE IMMUNIZATION AND
AFTER EACH OF THE THREE INJECTIONS OF THE PREPARATION WERE EXAMINED; THE
LAST SAMPLE WAS TAKEN IN 1.5-2.5 MONTHS AFTER THE THIRD INJECTION. AS
DEMONSTRATED, REDUCED DOSES OF TETANUS TOXOID (EITHER ITS DIMINISHED
CONTENT IN THE VACCINE FROM 5 TO 2.5 BU, OR ITS INCLUSION INTO THE
ASSOCIATED PREPARATION ONLY IN 2 INJECTIONS, FOR EXAMPLE IN THE 2ND AND
3RD, THE THIRD INJECTION CONTAINING NO TOXOID) WERE JUSTIFIED.
ANALOGOUS CHANGES COULD ALSO BE MADE IN RESPECT TO DIPHTHERIA TOXOID,
BUT IN THE LATTER CASE A STUDY OF THE TITRES AT THE MORE REMOTE PERIODS
AFTER THE IMMUNIZATION ARE REQUIRED. IT IS OF EXPEDIENCE TO INCREASE
THE CONTENT OF PERTUSSIS COMPONENT IN AKDC VACCINE FROM 10 TO 5 MILLIARD
MICROBIAL CELLS PER DOSE.

UNCLASSIFIED

UDC 532.1+517.9

USSR

GURENYAN, A. A.

"Determination of the Parameters of a Fluid in the Vicinity of a Wave-Front Junction Point by the Legras Method"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Seriya Tekhnicheskikh Nauk, No 1, 1972, pp 19-28

Abstract: The article deals with an axisymmetrical problem of movement of the semispace of an ideal compressible fluid under the action of a short wave or under the action of solid bodies. An investigation is made of the vicinity of the wave-front junction point by the Legras method, which consists in representation of the desired functions and the unknown variables in a function of the parameters alpha and T, where T characterizes the withdrawal of the point from the shock wave, and alpha is the angular distance. The solution of the problem is reduced to a system of ordinary differential equations, and is obtained numerically. The presented method can also be used to investigate the vicinities of wave-front junction points in a problem of the movement of a semispace of an infinitely conductive compressible fluid in a magnetic field. In a small vicinity of the junction point the solution is represented in the form of a series on the basis of degrees of alpha; this solution satisfies the conditions of the problem inclusively to the second order on the basis of alpha. 4 figures. 8 references.

1/1

UDC 661.143

USSR

DATSENKO, A. M., GURETSKAYA, Z. I., BUNDEL', A. A.

"Discovery of the Peculiarities in the Composition and Structure of Sulfide Luminophors for Color Kinescopes Capable of Affecting their Strength when Manufacturing a Mosaic Screen"

Tr. Mosk. khim.-tekhnol. in-ta im. D. I. Mendeleyeva (Works of the Moscow Chemical Technology Institute imeni D. I. Medeleyev), 1972, vyp. 71, pp 85-87 (from RZh-Khimiya, No 5(II), 1973, Abstract No 5L208)

Translation: A study was made of the causes of the 40-50% reduction in brightness of K-74 (a solid solution of ZnS. CdS: Ag) and K-75 (ZnS:Ag) luminescent compounds when depositing these compounds on the screens of color television kinescopes. The effect of the magnitude of the heat resistance, the chemical composition and the structure on the reduction in brightness of the glow of the compounds was determined. With a CdS content in the sulfide compound of <37%, the decrease in brightness was primarily caused by the solution of the Fe energy dissipator; for high CdS concentrations this reduction was caused primarily by the decay phenomena. The treatment of the screen surface with K silicate used at the plants has an inhibiting effect on the decay processes, but the decay without PVS

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USSR

DATSENKO, A. M., et al., Tr. Mosk. khim.-tekhnol. in-ta im. D. I. Mendeleyeva, 1972, vyp. 71, pp 85-87

[polyvinyl alcohol?] proceeds appreciably farther than without treatment by K silicate. The surface microstructure of the luminescent compound differs sharply even within the limits of one batch of the compound. The surface state of the individual microcrystals also differs sharply. The incomplete-ness of homogenization of the solid solutions of the luminescent compounds is noted. The removal of the PVS when heating the compounds at 430° is a complex process with competing reactions: the formation of low-molecular volatile materials and the formation of strongly carburized films.

2/2

TITLE--DIFFERENTIATEL DETERMINATION OF XYLENE AND TOLUENE ISOMERS IN
   NONAQUEOUS SOLVENTS -U-
AUTHOR-(03)-KRESHKOV, A.P., GURETSKIY, I.YA., SMOLOVA, N.T.

COUNTRY OF INFO--USSR

SOURCE--MATER. IKH PRIMEN. 1970, (2), 53-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--XYLENE, TOLUENE, OXIDATION, CARBOXYLIC ACID, POTENTIOMETRIC
   TITRATION, ISOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/008 STEP NO--UR/0303/70/000/002/0053/0056

CIRC ACCESSION NO--AP0140297
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0140297

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MIXTS. OF PHME AND O, M, AND P
XYLENE WERE OXIDIZED 40-5 MIN WITH KMNO SUB4 SOLN. AT 95-8DEGREES TO
GIVE BZOH AND THE CORRESPONDING DIBASIC ACIDS. IR SPECTRA AND GAS
CHROMATOG. SHOWED THAT ONLY CARBOXYLIC ACIDS WER FORMED, THERE WAS NO
DECARBOXYLATION. EACH PRODUCT GIVES A CHARACTERISTIC POTENTIOMETRIC
TITRN. CURVE AND CAN BE DETD. IN THE PRESENCE OF OTHER COMPONENTS. THE
TITRNS. WERE CARRIED OUT IN AN ACETONE WATER MECN ISO PROH MIXT. AGAINST
ISO PROK. THE MEAN ARITHMETIC DETN. ERROR WAS LESS THAN OR EQUAL TO
5.36PERCENT.

1/2   017   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--EFFECT OF ACETONITRILE AND WATER ON THE DIFFERENTIATING ACTION OF
   ACETONE WITH RESPECT TO PHTHALIC ACID ISOMERS -U-
AUTHOR-(04)-KRESHKOV, A.P., GURETSKIY, I.YA., SMOLOVA, N.T., RYAGUZOV,
   A.I.
CCUNTRY CF INFC--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 451-7

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACETONITRILE, ACETONE, PHTHALIC ACID, ISOMER, CALCULATION,
   ELECTROLYTE, POTENTIOMETRIC TITRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2056   STEP NO--UR/CG75/7C/C25/CC3/C451/C451

CIRC ACCESSION NO AP0125643
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0125643

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EQUATION FOR CALCG. THE PK OF
ELECTROLYTES IS SUGGESTED WHICH CAN BE APPLIED ONLY IF THE
POTENTICMETRIC TITRN. IS ACCOMPANIED BY PPT. FORMATION.   BY MEANS OF
THIS EQUATION, THE PK OF O, M, AND P,PHTHALIC ACIDS WERE CALCD.   THE
EFFECTS OF H SUB2 O AND MECN ON THE DIFFERENTIATING ACTION OF ME SUB2 CO
WITH RESPECT TO PHTHALIC ACID ISOMERS WERE STUDIED. H SUB2 DECREASES
THE ACTION AND MECN HAS NO ESSENTIAL EFFECT ON THE DIFFERENTIATING
ACTION OF ME SUB2 CO. THIS WAS TAKEN INTO ACCOUNT DURING THE
DEVELOPMENT OF THE METHOD FOR ANALYZING MIXTS. OF PHTHALIC ACID ISOMERS
IN A MIXED ME SUB2 CO,MECN,H SUB2 O SOLVENT.   FACILITY: MOSCOW
CHEM.-TECHNOL. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR   ٭   UDC: 534.1:621-752

GURETSKIY, V. V. and MAZIN, L. S., Leningrad

"On Maximum Possible Vibration Isolation Taking Into Account The Mass of Vibration Isolator"

Abstract: Among the latest vibration isolators there are many whose mass has an important effect and cannot be neglected. The mathematical model of the system being analyzed consists of an object to be isolated, supported on a fixed base by a vibration isolator. The object is not a solid body, it may consist of an upper mass m and a lower mass M connected by a spring of scale C. The vibration is excited by a harmonic motion of the base at the frequency ω. The minimum possible amplitude of vibration at a given section of the object is given by formula (23). The parameters of this formula can be determined experimentally by mounting the object on a vibration stand without vibration isolators. The parameters of the optimum vibration isolator are given by equation (25) and (26). In the case of massless vibration isolator the frequency ω should be in the range given by $0 < m\,c^{-1}\omega^2 < 1$.

1/1

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USSR

GURETSKIY, V. V., KOLOVSKIY, M. Z., MAZIN, L. S., Leningrad

"On the Limiting Possibilities of Antishock Damping"

Moscow, Mekhanika Tverdogo Tela, No 6, Nov/Dec 70, pp 17-22

Abstract: The paper deals with the limiting possibilities of anti-impact protection of equipment by using a damper, an impact shock absorber and combinations of the two. Theorems are proved which define the reaction of an optimum shock absorber as a function of time. Examples are given. The results may be easily generalized to the case of steady-state (periodic) effects.

1/1

USSR

GURETSKIY, V. V., MAZIN, L. S. (Leningrad)

"Concerning a Problem of Optimal Stabilization"

Moscow, Mekhanika Tverdogo Tela, No 4, Jul-Aug 70, pp 58-63

Abstract: The article deals with unidimensional stabilized oscillations of an elastic linearly damped body that are brought about by vibration of the base according to a harmonic law. The formulated problem belongs to the class of problems of the damping of elastic bodies and, in the article, is called a problem of optimal stabilization. 1 figure, 3 bibliographic entries.

1/1

1/2   017   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--THERMIONIC DETECTORS IN GAS CHROMATOGRAPHY -U-

AUTHOR-(03)-BRAZHNIKOV, V.V., GUREV, M.V., SAKODYNSKIY, K.I.

COUNTRY OF INFO--USSR

SOURCE--CHROMATOGR. REV. 1970, 12(1), 1-41

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAS CHROMATOGRAPHY, THERMIONIC TUBE, GAS DETECTOR,
  BIBLIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1985/1551   STEP NO--US/0000/70/012/001/0001/0041

CIRC ACCESSION NO--AP0101627
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0101627
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   A REVIEW IS GIVEN COVERING DESING
 AND EVOLUTION, CHARACTERISTICS, PHYS. FUNDAMENTALS OF DETECTION, AND
 APPLICATIONS OF THERMIONIC DETECTORS.   FACILITY: L. YA. KARPOV
 INST. PHYS. CHEM., MOSCOW, USSR.

UNCLASSIFIED

1/2   033
UNCLASSIFIED
TITLE--MECHANISM OF THERMIONIC DETECTION -U-   PROCESSING DATE--04DEC70

AUTHOR-(03)-BRAZHNIKOV, V.V., GUREV, M.V., SAKODYNSKIY, K.I.

COUNTRY OF INFO--USSR

SOURCE--CHROMATOGRAPHIA 1970, 2, 53-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THERMIONIC EMISSION, DETECTION EQUIPMENT, ORGANOPHOSPHORUS,
PESTICIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1828
STEP NO--UK/0000/70/002/000/0053/0058

CIRC ACCESSION NO--AP0118792
UNCLASSIFIED

CIRC ACCESSION NO--AP0118792
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALONG WITH DETECTORS OF THE
  UNIVERSAL TYPE, SELECTIVE DETECTORS SHOWING RESPONSES OF A VARIABLE
  DEGREE TO THE GROUPS OF COMPDS. CONTG. DIFFERENT ELEMENTS OR FUNCTIONAL
  GROUPS HAVE FOUND WIDE USE RECENTLY. ONE SUCH DETECTOR IS A THERMIONIC
  DETECTOR (TID) SHOWING HIGH SENSITIVITY AND SELECTIVITY TOWARDS P CONTG.
  COMPDS. AT PRESENT, A NO. OF COM. TID OF VARIOUS TYPES ARE AVAILABLE
  WHICH HAVE FOUND PARTICULARLY WIDE USE IN ANAL. OF ORGANOPHOSPHORUS
  PESTICIDES. DESPITE ACCUMULATION OF RATHER EXTENSIVE FACTS ON TID
  PERFORMANCE, THE MECHANSIM OF DETECTING BY A THERMIONIC DETECTOR REMAINS
  VAGUE IN MANY RESPECTS. SOME PROCESSES OF THERMIONIC DETECTION ARE
  DISCUSSED.   FACILITY: INST. SPACE RES., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 519.2

GUREVICH, A. D., GORDEYEV, A. A., and SUVOROV, B. V.

"Dispersion Characteristics of Estimates in Incorrect A Priori Statistics"

Tr. Sev.-Zap. zaoch. politekhn. in-ta (Transactions of the North-west Correspondence Polytechnical Institute—collection of works) No 15, 1971, pp 115-116 (from RZh—Matematika, No 6, 1972, Abstract No 6V146)

Translation: In an ordinary system of a linear regression, the best linear estimates as well as estimates in which the covariation matrix of observations is replaced by another positively defined matrix are written. An obvious inequality for the dispersions of these estimates is obtained. A. Bernshteyn

1/1

USSR   UDC: 519.2

GUREVICH, A. D.GORDEYEV, A. A., SUVOROV, B. V.

"Dispersion Properties of Estimates in the Case of Incorrect a Priori Sta-
tistics"

Tr. Sev.-zap. zaoch. politekhn. in-ta (Works of the Northwest Polytechnical
Correspondence Institute), 1971, No 15, pp 115-116 (from RZh-Kibernetika,
No 6, Jun 72, Abstract No 6V146)

Translation: The best linear estimates are written out in the conventional
linear regression scheme, as well as estimates in which the covariation
matrix of observations is replaced by another positive-definite matrix.
An obvious inequality is derived for the variances of these estimates.
A. Bernshteyn.

1/1

TITLE--RESONANCE IN FERRIMAGNETS CONTAINING PARAMAGNETIC IONS WITH NEAR
   CROSSING ENERGY LEVELS -U-

AUTHOR-(03)-GUREVICH, A.G., AGEEV, A.N., KLINGER, M.I.

COUNTRY OF INFO--USSR

SOURCE--J. APPL. PHYS. 1970, 41(3), 1295-302

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETIC RESONANCE, FERRIMAGNETISM, PARAMAGNETIC ION, MAGNETIC
   TRANSFORMATION, HOLMIUM, YTTERBIUM, TERBIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0498   STEP NO--US/0000/70/041/003/1295/1302

CIRC ACCESSION NO--AP0117732
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0117732

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME NEW EXPTL. RESULTS CONCERNING THE MAGNETIC RESONANCE IN PR PRIME3 POSITIVE DOPED YIG ARE PRESENTED AND DISCUSSED, TOGETHER WITH THE RESULTS FOR TB PRIME3 POSITIVE AND HO PRIME3 POSITIVE IN YIG ALREADY PUBLISHED, IN TERMS OF EXISTING THEORIES.
THE MAGNETIZATION DIRECTIONS CORRESPONDING TO THE NEAR CROSSINGS OF ENERGY LEVELS IN THE CASE OF HO PRIME3 POSITIVE CAN LIE WITHIN A CERTAIN LOCAL PLANE AND, IN THE CASE OF PR PRIME3 POSITVE, CAN COINCIDE WITH A LOCAL AXIS OF THE DODECAHEDRAL SITE (FOR TB PRIME3 POSITIVE, AS HUBER HAS FOUND, THESE DIRECTIONS FORM A CONICAL SURFACE). THE ANGLE AND TEMP. DEPENDENCES OF DELTAH FOR TB PRIME3 POSITIVE AND HO PRIME3 POSITIVE ARE VERY SIMILAR AND CAN BE EXPLAINED COMPLETELY IN TERMS OF SLOW RELAXATION. FOR PR PRIME3 POSITIVE, THESE DEPENDENCES IN THE DIRECTIONS OF NEAR CROSSINGS RESEMBLE THE "ANOMALOUS" BEHAVIOR FOR YB PRIME3 POSITIVE IN OCTAHEDRAL SITES. A CONTRIBUTION FROM TRANSVERSE RELAXATION IS PROBABLE IN THE CASE OF PR PRIME3 POSITIVE.
FACILITY: INST. SEMICOND., LENINGRAD, USSR.

UNCLASSIFIED

1/2   026   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--PROPAGATION OF MAGNETOELASTIC WAVES IN A HOMOGENEOUS MAGNETIC FIELD
 -U-
AUTHOR-(03)-GUREVICH, A.G., STAROBINETS, S.S., SURIKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 951-3

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--HOMOGENEOUS MAGNETIC FIELD, MAGNETOSTRICTION, SINGLE CRYSTAL
    PROPERTY, GARNET, CRYSTAL ORIENTATION, PHASE SHIFT, MAGNETIC
    POLARIZATION, MAGNETIC SUSCEPTIBILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1981   STEP NO--UR/0181/70/012/003/0951/0953

CIRC ACCESSION NO--AP0105055
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105055
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   RESULTS ARE GIVEN OF THE
INVESTIGATION OF MAGNETOELASTIC WAVES IN A HOMOGENEOUS INTERNAL FIELD,
PARALLEL TO THE (110) AZIS OF SINGLE CRYSTAL Y GARNET. ALONG THE CUBIC
(110) AXIS, 2 TRANSVERSE ELASTIC NORMAL WAVES CAN PROPAGATE, POLARIZED
IN THE DIRECTIONS (001) AND (110), RESP. A LINEARLY POLARIZED ELASTIC
WAVE WAS EXCITED AND DETECTED WITH THE AID OF AN AC CUT QUARTZ PLATE
ATTACHED TO 1 OF THE SURFACES OF THE SPECIMEN. THE DEPENDENCE IS GIVEN
OF THE AMPLITUDE OF MAGNETOELASTIC IMPULSES ON THE EXTERNAL MAGNETIC
FIELD. THE DISTANCE BETWEEN THE MAX. AND MIN. CORRESPONDS TO THE PHASE
SHIFT BETWEEN THE WAVES, DELTA PHI EQUALS PI, WHICH IS EQUIV. TO THE
ROTATION OF POLARIZATION OF THE TOTAL WAVE BY 90DEGREES ON PASSAGE
THROUGH AND OUT OF THE CRYSTAL. A SHARP INCREASE IN THE VELOCITY OR
ROTATION OF POLARIZATION IS OBSD. AS THE REGION OF FERROACOUSTIC
RESONANCE IS APPROACHED WHEN THE FREQUENCY OF EXCITING ELASTIC WAVES
COINCIDES WITH THE FREQUENCY OF MAGNETIC WAVES. FROM THE EXPTL. DATA,
THE DEPENDENCE OF THE PHASE SHIFT ON THE MAGNETIC SUSCEPTIBILITY (CHI)
WAS OBTAINED. WITH INCREASED CHI, A DEVIATION IS OBSD. FROM A LINEAR
DEPENDENCE.   FACILITY: INST. POLUPROV., LENINGRAD, USSR.
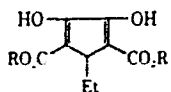
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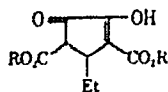Acc. Nr: AP0053766   Abstracting Service: Ref. Code:
CHEMICAL ABST.   5-70   UR0366

110861a 2-Hydroxy-4-ethyl-2-cyclopenten-1-ones. Gurevich, A. I.; Kolosov, M. N.; Korobko, V. G. (Inst. Khim. Prir. Soedin., Moscow, USSR). Zh. Org. Khim. 1970, 6(2), 311-13 (Russ). The condensation of RO_2CCO_2R (R = Et or $PhCH_2$) with $RO_2CCH_2CHEtCH_2CO_2R$ in the presence of MeONa or NaH gave disubstituted 1,2-dihydroxy-4-ethyl-2,5-cyclopentadiene (I). NMR spectrum of I (R = CH_2Ph) showed the presence of some of its tautomer: disubstituted 2-hydroxy-4-ethyl-2-cyclopenten-1-one (II) (R = $PhCH_2$). The hydro-

genolysis of I-II mixt. and decarboxylation of the products under mild conditions gave 2-hydroxy-4-ethyl-2-cyclopenten-1-one-3-carboxylic acid, which on heating at 130° gave the title compd. required in the synthesis of Abikoviromycin degradation products (A. I. Gurevich, et al., 1968).   CPJK

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198308290

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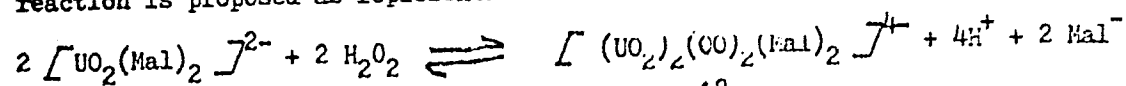
GUREVICH, A. M., POLOZHENSKAYA, L. P., OSICHEVA, N. P., and SOLNTSEVA, L. F.

"Reactions of Uranyl Malonate Complexes with Hydrogen Peroxide. II. Study of the Equilibria in the System $UO_2^{2+}-H_2O_2-C_3H_2O_4^{2-}-H_2O$"

Abstract: Results are reported on the study of the reaction of uranyl malonate complexes with hydrogen peroxide employing the methods of light absorption and pH-metry. On the basis of the results of calculations, the following reaction is proposed as representative for the range of molar ratios selected:

$$2 \left[UO_2(Mal)_2 \right]^{2-} + 2 H_2O_2 \rightleftharpoons \left[(UO_2)_2(OO)_2(Mal)_2 \right]^{4-} + 4H^+ + 2 Mal^-$$

with the equilibrium constant of $(3.3 \pm 0.6) \cdot 10^{-18}$. The complete formation of the complex ion $\left[(UO_2)_2(OO)_2(Mal)_2 \right]^{4-}$ with a 10^{-3}M concentration of uranium occurs at the pH range of $6 \rightleftharpoons 7$. The stability constant of the diperoxodimalonatodiyranyl ion was determined to be $\approx 1.7 \cdot 10^{75}$. In the pH range 2-7.5 partial displacement of the malonate groups takes place with the formation of $\left[(UO_2)_2(OO) (Mal)_x \right]$ $\left[(UO_2)_2(OO) (Mal)_x \right]^{(2x-2)-}$ type

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USSR

GUREVICH, A. M., et al., Radiokhimiya, Vol 13, No 5, 1971, pp 688-692

oc omplexes in the first phase, followed by the formation of $\left[(UO_2)_2(OO)_2(Mal)_x\right]^{2x-}$ in the second phase. In weakly basic medium, various types of peroxo-malonato-hydroxyl-uranyl complexes may form, and at pH $>$ 10, with excess H_2O_2 the hydroxyl and malonate groups may be displaced with formation of peroxide complexes $\left[(UO_2)_2(OO)_2(H_2O)_n\right]^2$ and $\left[UO_2(CO)_3\right]^{4-}$.

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USSR   UDC 543.251:546.799.3

GUREVICH, A. M., POLOZHENSKAYA, L. P., OSICHEVA, N. P., and SOLNTSEVA, L. F.

"Electrochemical Method of Isolating Neptunium From an Alkaline Peroxide Medium"

Leningrad, Radiokhimiya, Vol XIII, No 2, 1971, pp 239-245

Abstract: In connection with the urgency of the problem of separation and purification of transuranium elements and the difficulties of analyzing salt solutions containing micro amounts of transuranium elements, the possibility of separating these elements both jointly with uranium and in pure form (without a carrier) from alkaline peroxide media was studied on the example of ^{237}Np. The experimental procedure using the electrochemical method, and the data obtained are discussed. The applicability of the method to analysis of salt solutions of neptunium was demonstrated in a broad neptunium concentration range.

The yield of neptunium, introduced in the amount of 50-100 micrograms, reaches 99-100 percent, and its total losses vary from 0.5 to 1 percent under the following optimum conditions: pH $\approx$ 14.0, $[UO_2 \geq 5.6 \cdot 10^{-5}M(1-2$ milligrams in 75 ml), current density $\geq$ 1.0 milliamp/cm^2, electrolysis time $\geq$ 60 minutes,
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USSR

GUREVICH, A. M., et al., Radiokhimiya, Vol XIII, No 2, 1971, pp 239-245

temperature 95-100°. Data indicating the effect of the amount of carrier introduced into the experiment on the neptunium yield show that with a decrease in carrier concentration below the indicated limit, the neptunium losses begin to increase in connection with an increase in the effect of the solubility factor of the uranium and neptunium compounds when washing the participates with water. The data on the effect of salts on the ^{237}Np yield with uranium as the carrier show that the acetate and nitrate ions (both separately and jointly in a concentration up to 2M); the oxalate ion (up to 0.5M), have almost no effect on the ^{237}Np yield (97-99 percent) with total losses varying within the limits from 1 to 3 percent.

2/2

USSR

UDC 621.394/395.73.019.3

GUREVICH, A. S., KURBATOV, N. D.

"On Some Quantitative Characteristics and Possibilities for an Increase of the Reliability of Long-Distance Cable Communication Lines"

V sb. Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi, 1970 g. Vyp. 1 (Materials of a Scientific-Technical Conference. Leningrad Electrical Engineering Institute of Communication, 1970, No 1 -- Collection of Works), Leningrad, 1970, pp 137-141 (from RZh--Elektrosvyaz', No 9, Sep 70, Abstract No 9.64.260)

Translation: The paper presents statistical data collected from separate cable main lines on failures of symmetrical communication cables during several years of operation. The rate of failures (λ) is determined by those data for armored cables laid outside of inhabited points ($\lambda = 2.02 . 10^{-5}$ 1/hour) and in a zone of inhabited points ($\lambda = 14.84 . 10^{-5}$ 1/hour), and also for nonarmored cable laid in a zone of inhabited points ($\lambda = 8.71 . 10^{-5}$ 1/hour). The principal reasons for failures of cables which are operated in a zone of inhabited points are for cables laid in the ground (85 percent failures) -- mechanical damages, and for cables laid in channelings (46 percent failures) -- unexplained causes. Concepts of permissible and and coefficient of decrease of the rate of failures are introduced. A

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USSR

GUREVICH, A. S., et al., V sb. Materialy nauchno-tekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi, 1970 g. Vyp. 1 (Materials of a Scientific-Technical Conference. Leningrad Electrical Engineering Institute of Communication, 1970. No 1 -- Collection of Works), Leningrad, 1970, pp 137-141 (from RZh--Elektrosvyaz', No 9, Sep 70, Abstract No 9.64.260)

calculation is given of the permissible λ for a 100-km section of cable and for the permissible λ for the cable of a main line. Three tables and three references. K. A.

2/2

USSR   UDC   621.371:551.510.535

GUREVICH, A. V., PARIYSKAYA, L. V., TUSHENTSOVA, I. A., and
TSEDILINA, Ye. Ye.

"Trapping Radio Waves in the Ionospheric Waveguide Channel"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.
Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio
waves; Report Theses; Section 1--collection of works) "Nauka,"
1972, p 354 (from RZh--Radiotekhnika, No 10, 1972, Abstract No
10A334)

Translation: Pickup due to nonlinear processes and changes in the
ionosphere along the beam trajectory (i.e., due to the longitude-
latitude of the ionosphere nonuniformity) is studied. The frequen-
cy regions and radiation angles at which pickup occurs are inves-
tigated. For the specific model of a quiet ionosphere, the depend-
ence of trapping conditions on the geographical coordinates of the
radiation, the time of day, and the direction of the radiation, are
examined. Resume

1/1

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USSR

UDC 538.56:533.9

GUREVICH, A. V., Physics Institute imeni P. N. Lebedev of the USSR Academy of Sciences

"Moving Ionization Disturbances in the Field of Strong Electromagnetic Waves"

Abstract: A study was made of the disturbance of ionization and electron temperature in a plasma in strong electromagnetic fields. Intensified absorption of the electromagnetic waves in the region of their reflection leads to exhibition of moving ionization disturbances of the plasma. The conditions of occurrence of the moving disturbances, their velocity and spatial structure are defined. It is demonstrated that in a weakly nonuniform plasma such disturbances appear in the vicinity of the wave reflection point, and they move counter to the wave causing the disturbance. This leads to generation of non-damping nonlinear oscillations in the plasma. The oscillation frequency is defined. It decreases with an increase in the absorbed power of the wave.

A mathematical analysis is performed the physical meaning of which is that the wave absorption near the reflection point leads to heating and, consequently, to a change in the plasma concentration. Thus, the reflection

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USSR

GUREVICH, A. V., _Izvestiya vysshikh uchevnykh zavedeniy, Radiofizika_, Vol XV,
No 1, 1972, pp 11-19

point of the wave shifts, and if the concentration increases with an increase
in the electron temperature then the disturbed region moves counter to the
wave causing disturbance of the plasma. A moving disturbance occurs.

TITLE--EXACT SOLUTIONS OF NONLINEAR GEOMETRICAL OPTICS EQUATIONS -U-

AUTHOR-(02)-GUREVICH, A.V., SHVARTSBURG, A.B.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
   NR 6, PP 2012-2022
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROMAGNETIC WAVE, OPTIC PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2228   STEP NO--UR/0056/70/058/006/2012/2022

CIRC ACCESSION NO--AP0125806
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0125806
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   NONLINEAR DYNAMICS IN A MEDIUM OF
  INTENSE PLANE BEAMS OF ELECTROMAGNETIC WAVES IS INVESTIGATED WITHIN THE
  FRAMEWORK OF GEOMETRICAL OPTICS.   A BROAD CLASS OF EXACT ANALYTIC
  SOLUTIONS OF NONLINEAR GEOMETRICAL OPTICS EQUATIONS IS INDICATED.   IT IS
  SHOWN THAT WITH DEVELOPMENT OF THE SOLUTION SINGULARITIES ARISE IN THE
  DISTRIBUTION OF INTENSITY AND DIRECTION OF THE RAYS IN THE BEAM, JUST AS
  DURING DEVELOPMENT OF A SIMPLE WAVE IN THE HYDRODYNAMICS OF AN IDEAL
  COMPRESSIBLE LIQUID.   THE SINGULARITIES ARE CLASSIFIED AND THE THREE
  MAIN TYPES ARE MENTIONED.   FACILITY: FIZICHESKIY INSTITUT IM. P.
  N. LEBEDEVA AN SSSR.

UNCLASSIFIED

TITLE--AURORAL PROTONS AND RESONANCE CONCEPT OF SUBSTORMS -U-

AUTHOR-(05)-GALPERIN, YU.I., GLADYSHEV, V.A., GUREVICH, A.V., KUZMIN,
    A.K., PONOMAREV, YU.N.
CCUNTRY OF INFO--USSR

SOURCE--MOSCOW, KOSMICHESKIYE ISSLEDOVANIYA, VOL VIII, NO 3, 1970, PP
    457-460
DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, ASTRONOMY ASTROPHYSICS

TOPIC TAGS--AURORA, PROTON, MAGNETOSPHERE, ELECTRIC FIELD, SOLAR WIND,
    GEOMAGNETIC STORM, PROTON RESONANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0508   STEP NO--UR/0293/70/008/003/0457/0460

CIRC ACCESSION NO--AP0132711
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0132711
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE AUTHORS PROPOSE A "RESONANCE"
CONCEPT OF THE APPEARANCE OF A SUBSTORM.   IT CAN BE SUMMARIZED AS
FOLLOWS: 1) THERE IS A MORE OR LESS STATIONARY QUASITRAPPED COMPONENT
OF AURORAL PROTONS (AND POSIBLY ELECTRONS) WITH A CHARACTERISTIC ENERGY
OF ABOUT 10 KEV, HAVING A STRUCTURELESS "BACKGROUND" SPACE DISTRIBUTION.
2) THIS CHARACTERISTIC ENERGY OF AURORAL PARTICLES IS THE "RESONANCE"
ENERGY OF QUASITRAPPED PROTONS OF THE RING CURRENT AND AURORAS.   3) IT
IS POSTULATED THAT THERE IS AN ACCUMULATION OF THE RESONANCE COMPONENT
IN THE EVENING AND NIGHTTIME REGIONS OF THE "SACK" AS A RESULT OF THE
ASYMMETRICAL INJECTION OF THESE PARTICLES INTO QUASITRAPPED
TRAJECTORIES, THE APPEARANCE OF A RING CURRENT AS A RESULT OF THIS
ASYMETRY, AND AS A RESULT, THE GENERATION OF A LARGE SCALE SELF
CONSISTENT ELECTRIC FIELD IN THE MAGNETOSPHER.   4) IT IS POSTULATED THAT
THE INCREASE IN DENSITY OF RESONANCE PARTICLES WITH THEIR ACCUMULATION
IN THE REGION OF THE "CUSP" OR "SACK" ABOVE SOME CRITICAL VALUE GIVES
RISE TO THE PHENOMENON OF A "MAGNETOSPHERIC EXPLOSION," A SUBSTORM, AND
SUCH A PROCESS CAN BE REPEATED WITH CONTINUATION OF "PUMPING" OF THE
MAGNETOSPHERE WITH RESONANCE PARTICLES.   5) IT IS POSTULATED THAT THERE
IS A SELECTIVITY OF THE REACTION OF THE EARTH'S MAGNETOSPHERE TO THE
APPEARANCE OF PARTICLES WITH ENERGIES CLOSE TO "RESONANCE" IN THE SOLAR
WIND FLOWING AROUND IT.

UNCLASSIFIED

CIRC ACCESSICN NO--AP0132711
ABSTRACT/EXTRACT--6) IT IS POSTULATED THAT THE PHENOMENON OF A LAG IN
MAGNETIC STORMS IN COMPARISON WITH THE ACTIVE HELIOPHYSICAL PROCESSES
RESPONSIBLE FOR THEM IS DETERMINED BY THE TIME OF INTERPLANETARY SPACE
PROPAGATICN OF THAT COMPONENT OF A "CORPUSCULAR STREAM" EJECTED FROM THE
SUN WHICH IS RESPONSIBLE FOR "RESONANCE" IN THE EARTH'S MAGNETOSPHERE.
THIS CONCEPT DOES NOT PRECLUDE PROCESSES LEADING TO THE APPEARANCE OF
TYPICAL SHARPLY DEFINED AURORAL ZONES, USUALLY SITUATED ALONG THE
AURORAL OVAL AND CAUSED BY THE INJECTION OF PARTICLES WITH A
CHARACTERISTIC ENERGY 1-5 KEV AND HIGH ENERGY PARTICLES (UP TO 10 PRIME2
-10 PRIME4 KEV), WHOSE INTERPRETATION EVIDENTLY REQUIRES A DETAILED
EXAMINATION OF OSCILLATORY AND OTHER COLLECTIVE PROCESSES IN
MAGNETOSPHERIC PLASMA.

UNCLASSIFIED

USSR   UDC 621.762.2:669.269'784

GUREVICH, B. D., NEZHEVENKO, L. B., GROSHEV, V. I., and GUDOVICH, A. P.

"New Methods for Dispersion of Refractory Metal Carbide Powders"

Tugoplavk. karbidy [Refractory Carbides -- collection of works], Kiev, Nauk. dumka Press, 1970, pp. 40-44 (Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract No. 2 G438 by the authors)

Translation: The optimal modes are determined for powdering of Zr carbide by ultrasonics and in a planetary centrifugal mill. Grinding by ultrasonics produces spherical powders with high dispersion and small quantities of rubbed impurities. The impurities rubbed from the surface of the mill during grinding can be reduced by using a Zr carbide liner. 2 figures; 2 tables; 6 biblio. refs.

1/1

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NEZHEVENKO, L. B., GROSHEV, V. I., GUREVICH, B. D., and BOKOV, O. V.

"Influence of Production Conditions of Zirconium Carbide Powder on Properties of Sintered Specimens"

Translation: The influence of the content of incompletely reduced oxides on the sintering qualities of products of Zr carbide powders is studied. An increase in the content of O in ZrC powders of from 0.2 to 7% decreases the rate of grain growth of finished products and helps to stabilize grain size. A method is developed for production of specimens of Zr carbide of high density. 3 figures; 2 tables; 7 biblio. refs.

1/1

- 32 -

USSR   UDC: 621.787.4:[669.295-155.3+669.14:621.785.539:661.65]:539.431

GUREVICH, B. G., Candidate of Technical Sciences

"Increasing the Carrying Capacity of Boronized Steel and Nitrided Titanium Alloy By means of Roller Rolling"

Moscow, Vestnik Mashinostroyeniya, No 1, Jan 72, pp 52-53

Abstract: It is found that plastic deformation by means of rolling with a roller is an effective means of increasing the fatigue strength of boronized steel parts and nitrided parts of titanium alloys. The mechanism of the strengthening of parts with thin hard layers and fragile diffusion layers is explained. Effectiveness of the application of surface plastic deformation for parts with such layers depends upon the rolling regime and upon the initial roughness of the surface. Two figures, three references.

1/1

1/2   024   UNCLASSIFIED   PROCESSING DATE--11DEC70

TITLE--NEW FINDINGS ON THE DISTRIBUTION OF CIRCADIAN RHYTHMS IN PLANTS,
   OSCILLATIONS OF BIOLOGICAL CLOCKS -U-

AUTHOR-(02)-GUREVICH, B.KH., IOFFE, A.A.

CCUNTRY OF INFO--USSR

SOURCE--LENINGRAD, BOTANICHESKIY ZHURNAL, NO 1, 1970, PP 77-81

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PLANT PHYSIOLOGY, CIRCADIAN RHYTHM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NC----FD70/605019/F06 STEP NO--UR/0319/70/000/001/0077/C081

CIRC ACCESSION NO--AP0140984
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0140984

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN HIS BOOK DIE PHYSIOLOGISCHE UHR (1958), E. BUNNING MAINTAINS THAT THE BIOLOGICAL CLOCKS IN HIGHER PLANTS FUNCTION UNIFORMLY IN EACH CELL, SO THAT A PLANT IN THIS RESPECT SHOULD BE REGARDED AS A HOMOGENEOUS CELLULAR CONTINUUM. ON THE BASIS OF SOME EVIDENCE IN THE LITERATURE AND THE RESULTS OF EXPERIMENTS WITH THE PHOTOPERIODICALLY SENSITIVE PERILLA OCYMOIDES AND THE PHOTOPERIODICALLY NEUTRAL PHASEOLUS VULGARIS, IT WAS ARGUE THAT THE SET OF CLOCKS MAKES UP A HIERARCHICAL, MULTILEVEL SYSTEM. IT WAS FOUND THAT THE OSCILLATIONS OF THE CLOCKS SPREAD FROM THE LEAF TO THE PETIOLE, FROM ONE LEAF TO ANOTHER, AND FROM THE PETIOLE TO THE STEM, FROM ONE STORY OF LEAVES TO ANOTHER, FROM THE AERIAL PARTS TO THE UNDERGROUND PARTS, I.E., THE OSCILLATIONS GRAVEL THROUGHOUT THE PLANT FROM TISSUE TO TISSUE OR FROM ORGAN TO ORGAN. WITH RESPECT TO THE GENERAL PHYSIOLOGICAL SIGNIFICANCE OF THE OSCILLATIONS, IT IS TENTATIVELY SUGGESTED THAT THEY MAY CONVEY INFORMATION ON THE ONTOGENETIC DEVELOPMENT OF AN ORGAN, AND EFFECTS ON THE NEIGHBORING ORGANS. WHETHER OR NOT THIS INFORMATION IS USED BY THE PLANT IS NOT KNOWN. FACILITY: SCIENTIFIC RESEARCH INSTITUTE OF AGRICULTURAL PHYSICS, LENINGRAD.

UNCLASSIFIED

USSR

GUREVICH, B. KH., et al., Leningrad, Botanicheskiy Zhurnal, No 1,
1970, pp 77-81

organ. With respect to the general physiological significance of the
oscillations, it is tentatively suggested that they may convey in-
formation on the ontogenetic development of an organ, and effects on
the neighboring organs. Whether or not this information is used
by the plant is not known.

2/2

UDC 669.017:535.211

USSR

GUREVICH, G. L., and MURAV'YEV, V. A., Gor'kiy

"Effect of the Temperature Relationship of the Coefficient of Reflection in Heating Thin Films by Laser Radiation"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 73, pp 26-29

Abstract: The problem of heating thin films by laser radiation was investigated in which the calculation of the temperature fileds was made with consideration of the temperature relationship of the reflection coefficient $R(T)$. It was shown that this circumstance leads to a lowering of threshold densities of radiaton capacity by $A(T_k)/A(T_o)$ times, where $A = 1 - R$ is the adsorbability of the film, T_k is the failure temperature, and T_o is the initial temperature. Conditions are mathematically formulated for which the computation of the relationship of R to T becomes trivial. Four bibliographic references.

1/1

USSR

UDC 621.375.82

GUREVICH, G. L., INGEL', L. Kh., KHANIN, Ya. I.

"Effect of a Nonlinear Lens on the Stability of Steady-State Laser Oscillation"

Translation: The problem of the stability of stationary laser oscillation when a medium is present in its resonator, the refractive index of which depends on the radiation intensity, is discussed. It is shown that the instability threshold drops as diffraction losses rise. The value of the threshold is determined for cases in which an inertialess nonlinear dielectric plays the role of such a medium or the substance itself is active. 13 ref. Authors' abstract.

1/1

USSR

GUREVICH, G.L., PASHKIN, V.M.

"A Steady-State Regime Of Mode Locking In A Laser With A Saturable Absorber"

Abstract: It is shown that there exists a simple conformity between the form of radiation in a steady-state regime of mode locking and the well-known solution of the single-mode problem. The statement developed concerning the correspondence of the forms of single-mode and multimode solutions is also correct for a saturable absorber for which inertia is important. The form of the emission pulses is determined, giving rise to a solution which in turn depends on an arbitrary constant -- the amplitude of the pulses. The character-istics of the absorber only affects this amplitude. Consequently, at the same amplitude, pulses in the laser have the same duration, both with an inertial and a noninertial absorber. The time lag of a saturable absorber affects only the absorber quantity necessary to obtain a pulse of a given amplitude. 1 fig. 4 ref. Received by editors, 16 June 1971.

1/1

USSR   UDC 539.4

LEVIN, YE.YE., KAZENINA, A.D., KURATOV, P.S., GUREVICE, G.I., GENERSON, I.G.,
LUBMAN, P.M., Central Scientific Research, Planning, and Design Boiler
and Turbine Institute imeni I.I. Polzunov

"Some Results of Acceleration Tests of Disk Models Made of Steel EP 631"

Abstract: The experinece of preparing and testing disks with a diameter of
355 x 46 mm, made of ingots weighing 0.8 t, is set forth for the first time.
Steel EP631 was melted in a 5-ton electric arc furnace with subsequent
vacuum-arc remelting. The heat-treatment regime of the disks is presented,
as well as their mechnical properties in various directions. The results
of acceleration tests of two models of the disks of one of the turbo machines
are presented. Tests were carried out on disks without incisions, as well as
on disks with "effective" incisions on the internal diameter, 10 mm deep
and with a curvature radius of 0.18 mm. The obtained results testified to
the actual possibilities of preparing and using disks of the indicated size
from steel EP631. 3 figures, 3 tables, 9 bibliographic entries.

1/1

Lasers / Masers

GUREVICH, G. L., PASKHIN, V. M.

"Steady State Conditions of Mode Synchronization in a Laser with a Saturable Absorber"

Abstract: It has been demonstrated previously [G. L. Gurevich, Izv. vvssh. uch. zav., Radiofizika, Vol 13, No 7, 1019, 1970; G. L. Gurevich, et al., ZhTF, Vol 40, No 12, 1566, 1970] that instability in the intermode beat frequencies usually occurs for smaller amounts of absorber than required for instability of slow modulations. Thus, the development of instability in the intermode beat frequencies leads to the establishment of periodic conditions with a characteristic modulation time less than or on the order of L/c (L is the length of the resonator, c is the speed of light) which can be interpreted as the mode synchronization conditions. The basic characteristics of these periodic conditions are determined here. There is a simple correspondence between the form of the radiation in the steady state mode synchronization conditions and the known solution of the single-mode problem. The dependence of the amplitude and shape of the pulses on the amount of absorber is defined. Correspondence of the forms of the single mode and multimode solutions is
1/2

USSR

correct also for a saturable absorber for which the inertia is significant. Actually, the shape of the radiation pulses is determined by the generating solution which, in turn, depends on an arbitrary constant — the pulse amplitude. The absorber characteristics only affect this amplitude. Therefore, for identical amplitude, the pulses in a laser both with an inertia and an inertialess absorber have identical duration. The inertia of the saturable absorber is felt only in the amount of the absorber required to obtain pulses of the given amplitude.

2/2

USSR   UDC 621.378.2

GUREVICH, G. L.

"On the Theory of Traveling Wave Lasers"

Gor'kiy, IVUZ, Radiofizika, Vol 13, No 7, 1970, pp 1019-1028

Abstract: Traveling wave lasers with arbitrary nonlinearity are considered. It is shown that in many cases a relationship may be established between the shape of the emitted pulses and the initial conditions without resorting to the solution of nonlinear equations. The shape of pulses emitted from the laser in the Q-modulation mode is considered by way of example. The envelopes of pulses formed by single-photon and two-photon saturable absorbers are determined. The stability of steady-state emission from a laser with saturable absorbers is investigated, and it is shown that instability on intermode beat frequencies takes place when the quantities of absorber are negligible.

1/1

GUREVICH, G.S.   Microelectronics

JPRS 57313

25 October 1972

MICROELECTRONICS

Excerpts from Russian-language book edited by F. V. Lukin:
Mikroelektronika, No 5, 1972, Sovetskoye Radio Publishing House,
Moscow, UDC 621.382:621.396.6-181.5.

CONTENTS

[I - a -]

[I - USSR - F]

logic (title) of monolithic integrated circuits and possessing/
compensurability with typical logic elements of low-power/
TTL of the integrated circuit. Evaluations are given for
the possibility of accomplishing, on the basis of the sug-
gested difference control element, variations of typical in-
tegrated subsystems in the TTL base.

The article contains 11 figures, 2 tables, and 6 bib-
liographic references.

Evaluation of the influence of Echoes on the Distortion of
Information Signals in Systems Using Integrated Circuits of
Transistor-Transistor Logic (title). Doroshin, V.M., Lovin,
G.Kh., and Kedina, M.F., in the collection Microelectronics,
edited by F.V. Lukin, No 5, p 227, Sovetskoye Radio Publish-
ing House, 1972.

Construction of reliable computer systems and devices
on high-speed integrated circuits is possible only with the
proper solution to the problem of matching integrated circuits
with the connecting transmission lines. The article evaluates
distortions in information signals in transmission lines con-
necting integrated circuits of the transistor-transistor logic.

The article contains 10 figures and 3 bibliographic
references.

UDC 621.382.8.621.372.2

Propagation of Impulses in Nonuniform Lines with Variable
Parameters. Gurevich, G.S. and Orlikovsky, A.A. In the
Collection Microelectronics, edited by F.V. Lukin, No 5,
p 245, Sovetskoye Radio Publishing House, 1972.

For a nonuniform line with variable parameters of a
common type the authors establish the relationships for the
duration of the impulse and the rate of propagation of the
fronts. They obtain expressions for energy, current, voltage,
and power of an infinitely fine impulse. They evaluate the
energy of an impulse of finite duration. The obtained re-
sults permit justifiably continuing computation of the inter-
element connections of major integrated circuits and design-
ing of integrated circuits with the conversion of the im-
pulse duration and distributed amplification.

The article contains 1 figure and 6 bibliographic
references.

UDC 681.325.65

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USSR   UDC 533.697

GUREVICH, I. L.

"Some Problems of Flow of a Gas from a Vessel with Curvilinear Walls"

Tr. Seminara po kravev. zadacham. Kazansk. un-t (Works of the Seminar
on Boundary Problems. Kazan' University), 1970, vyp. 7, pp 111-115
(from RZh-Mekhanika, No 10, Oct 70, Abstract No 10 B340)

Translation: With the help of conformal mappings, four problems of the
outflow of a gas from a vessel of finite width the walls of which have
a continuous tangent are investigated. A characteristic feature of
such problems is the fact that the regions of variation of the analyti-
cal functions realizing the mapping $x, y \to \xi, \eta (\zeta = \zeta + i_n)$ are unknown
in advance. It is assumed that the x-axis is parallel to the asympto-
tic direction of the jet at infinity , and the current function is
$\psi = 0$ on the upper wall and $\psi = Q$ on the lower wall. The following
statements of the problem are presented: 1) a symmetrical vessel is
formed by rectilinear parallel walls ending in arcs of a circle of ra-
dius R; 2) the lower wall of the vessel is a halfline, and the upper
wall is formed by a halfline parallel to it ending in an arc of a
1/2

USSR

GUREVICH, I. L., Tr. Seminara po krayev. zadacham. Kazansk. un-t, 1970, vyp 7, pp 111-115

circle; 3) the inverse problem is flow from a symmetrical vessel with given velocity distribution with respect to the wall $q(L)$; 4) the inverse mixed problem is that the distribution $q(L)$ is given in the sections of the walls of the symmetrical vessel adjacent to the free current lines, and the remaining parts are formed by parallel halflines. By using the Dini and Gilbert formulas these problems reduce to integral equations the existence and uniqueness of the solutions of which are proved by means of the Lere-Shauder method, the principle of compressed mappings and the theorem of existence and differentiableness of the implicit function. For small values of the parameter $\lambda \sim Q/R$ the solutions of problems 1) and 2) are found in the first approximation.

2/2

1/2   017   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--SEARCH FOR THE DIRAC MONOPOLE AT THE 70 GEV I.P.H.E. PROTON
   SYNCHROTRON -U-
AUTHOR-(05)-GUREVICH, I.I., KHAKIMOV, S.KH., MARTEMIANOV, V.P., MISHAKOVA,
   A.P., OGURTZOV, V.V.
COUNTRY OF INFO--USSR

SOURCE--PHYS. LETTERS (NETHERLANDS) VOL. 31B, NO. 6, P. 394-6 (16 MARCH
   1970)
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PROTON ACCELERATOR, SYNCHROTRON, MAGNETIC POLE, PARTICLE CROSS
   SECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0532   STEP NO--NE/0000/70/003/006/0394/0396

CIRC ACCESSION NO--AP0111725
                        UNCLASSIFIED

CIRC ACCESSION NU--AP0111725
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DESCRIBES A SEARCH FOR
   THE DIRAC MONOPOLE AT THE 70 GEV I.P.H.E. PROTON SYNCHROTRON. IT WAS
   FOUND THAT THE UPPER LIMIT OF THE MONOPOLE PRODUCTION CROSS SECTION WAS
   SIGMA (90PRIME0 SU30) SMALLER THAN OR EQUAL TO 1.5 TIMES 10 PRIME
   NEGATIVE 41 CM PRIME2 FOR M SUBQ SMALLER THAN OR EQUAL TO 5 M.
   FACILITY: I. V. KURCHATOV INST. ATOMIC ENERGY, MOSCOW, USSR.

UNCLASSIFIED

CIRC ACCESSION NO--AP0129256
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METICULOUS NEUROLOGICAE
  EXAMINATION AND A DETAILED STUDY OF METABOLIC FUNCTION IN 39 PATIENTS
  WITH PRIMARY GLAUCUMA ENABLED IT TO ELICIT INVOLVEMENT OF THE
  HYPOTHALAMIC REGION IN ALL OF THESE PATIENTS. IN A FEW CASES VEGETATIVE
  VASOVISCERAL CRISES AND SYNDROMES OF AN UPSET THERMOREGULATION WERE
  RECORDED. IN THE MAJORITY OF CASES HYPOTHALMIC INVOLVEMENT
  INGLAUCOMATOUS PATIENTS WAS MADE EVIDENT THROUGH VEGETATIVE TESTS AND AN
  INVESTIGATION INTO DIFFERENT TYPES OF METABOLISM, AND IT MANIFESTED
  ITSELF IN NEURO ENDOCRINE AND METABOLIC SHIFTS AND CERTAIN
  PYSCHOPATHOLOGICAL DISTURBANCES, IN ALL LIKELIHOOD OF HYPOTHALMIC
  ORIGIN. HYPOTHALMIC PATHOLOGY IS NOT EXPRESSED IN VIOLENT CRISES, WITH
  NONE TOO GROSS VASOVEGETATIVE AND MEABCLIC ENDOCRINE CHANGES BEING
  ENCOUNTERED MOST OFTEN. THE AUTHORS' OBSERVATIONS SUGGEST AN
  IMPLICATION OF HYPOTHALMIC REGION IN PATIENTS WITH PRIMARY GLAUCOME AND
  THIS SHOULD BE REFLECTED IN INTERPRETING THE PATHOGENESIS AND TREATMENT
  OF THIS AFFECTION.   FACILITY: KAFEDRA GLAZNYKH BOLEZNEY I
  KAFEDRA NERVNYKH BOLEZNEY I NEYROKHIRURGII SVERDLOVSKGO MEDITSINSKOGO
  INSTITUTA.

UNCLASSIFIED

USSR   UDC 621.382:535.376

GUREVICH, I.M., NOVIKOVA, G.M., PYATNITSKAYA, G.A., IL'INSKIY, A.A.,
LETICHEVSKIY, YE.A.

"Investigation Of Gallium-Phosphide Light-Emitting Diodes And Development Of
Laboratory Generator Of Short Light Pulses"

Translation: The paper investigates GaP light-emitting diodes in a pulse regime
(τ = 100 nanosec) with a pumping current of 1.2 A. The luminous efficiency of
the diffusion diodes amounts to 5×10^{-3} lm/sec/Joule and the epitaxial 0.55×10^{-3} lm/sec/Joule. A pulse generator (IGS-1) was developed for the supply of
light-emitting diodes with a pulse duration of 10 nanosec, a front of 5 nanosec,
and a maximum voltage of 35 V. 3 ill. 6 ref. Yu.M.

1/1

1/2   020   UNCLASSIFIED   PROCESSING DATE--30OCT70

TITLE--CALIBRATION OF BALLISTIC PULSED PHOTOMETERS -U-

AUTHOR-(03)-VULFSON, K.S., GUREVICH, I.M., CHARNAYA, F.A.

CCUNTRY OF INFO--USSR

SOURCE--PRIBORY I TEKHNIKA EKSPERIMENTA, JA.-FEB. 1970, P. 186, 187

DATE PUBLISHED------70

SUBJECT AREAS--PHYSICS, METHODS AND EQUIPMENT

TOPIC TAGS--PHOTOMETER, INSTRUMENT CALIBRATION, LIGHT PULSE, LIGHT
   RADIATION EFFECT, ERROR MEASUREMENT, GALVANOMETER

CCNTROL MARKING--NO RESTRICTICNS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1550   STEP NO--UR/0120/70/000/000/0186/1087

CIRC ACCESSION NC--AP0106296
                        UNCLASSIFIED

CIRC ACCESSICN NO--AP0106296

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OUTLINE OF A METHOD OF CALIBRATING BALLISTIC PHOTOMETERS WITHOUT USING AN ETALON LIGHT PULSE. THE BALLISTIC SENSITIVITY OF THE PHOTOMETER IN QUESTION IS DETERMINED FROM ITS SENSITIVITY TO STEADY RADIATION, AND FROM THE OSCILLATION PERIOD AND THE DEGREE OF DAMPING OF THE GALVANCMETER FRAME.   FACILITY: VSESOIUZNYI NAUCHNO-ISSLEDOVATEL'SKII SVETOTEKHNICHESKII INSTITUT, MOSCOW, USSR.

UNCLASSIFIED

USSR

GUREVICH, Kh. G., SEMENOVA, Z. A., SHVARTS, A. G.

"The 'Polimer-2' Computer and Experience in Using It in Solving Convex Programming Problems"

Translation: This article contains a description of a specialized semiconductor analog computer of the "Polimer-2" type which simulates a system of 10 second-order polynomials and permits statement and solution of problems of nonlinear programming with a 5 x 10 matrix. The computer, constructed from U-6 type dc amplifiers, includes a system for assigning components and nonlinear combinations of them, a system of 10 voltage generators corresponding to the physical and mathematical properties of the problem, a commutation system, a system for assigning restrictions, and a signalling system. There are seven illustrations and one table.

1/1

USSR   UDC: 621.315.592

GUREVICH, L. E. and TARKHANYAN, R. G.

"The Connection Between Electromagnetic Waves and Plasma and
Optical Oscillations in a Single-Axis Polar Crystal"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1895-
1899

Abstract: The authors consider the effect of long-wave lattice os-
cillations on the propagation of electromagnetic waves in a uni-
axial polar crystal with an electron plasma. They show that the
connection among the three subsystems substantially alters the law
of electromagnetic propagation they deduced in earlier studies,
published in the same journal named above (3, 1969, 93; 6, 1972,
1716), for cases of waves connected only with the plasma oscilla-
tions or only with the optical oscillations of the lattice. The
theory is developed by solving the Maxwell equations in which the
displacement vector of the long-wave optical oscillations and the
collisionless equation of motion of free electrons of a particular
spectrum are computed to yield the dielectric permeability tensor.
Using this tensor, the authors obtain from the dispersion equation

1/2

USSR   UDC: 621.315.592

GUREVICH, L. E., et al, Fizika i tekhnika poluprovodnikov, No 10,
1972, pp 1895-1899

the indices of refraction for two waves, one transverse and the
other longitudinal-transverse to the crystal axis.

2/2

GUREVICH, L.E. [Physico-Technical Institute imeni A.F. Ioffe, Academy Of Sciences, USSR, Leningrad]; TARKHANYAN, R.G. [Institute Of Radiophysics And Electronics, Academy Of Sciences, Armenian SSR, Yerevan]

"Electromagnetic Waves In Uniaxial Conductive Crystals In A Magnetic Field"

Abstract: The propagation is investigated of electromagnetic waves in an uniaxial conductive crystal located in a magnetic field of an arbitrary form oriented with the axis of the crystal. The polarization is studied of waves propagating lengthwise of a magnetic field, the rotation is considered of an ellipse of polarization in the magnetic field, and it is shown that the angle of rotation and the degree of ellipticity can oscillate, while with specific conditions the characteristic length of the oscillations can prove to be much smaller than the thickness of the crystal. It is shown that the cyclotron and plasma resonance known for isotropic media are shifted, changed into a combined cyclotron-plasma resonance. The reflection of waves is considered, the regions of transparency and total reflection are investigated, and an expression is obtained for the reflection coefficient in the region of propagation of helicons. The formulas obtained can be used for determining the optical characteristics of both uniaxial and one-sided deformed cubic crystals of type n-InSb.7 ref. Received, 30 Sept 71.
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USSR

GUREVICH, L. E., and IOFFE, I. V., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR, Leningrad

"Waves Created in a Conducting Medium by the Photoelectric Effect"

Abstract: As an electromagnetic wave passes through a crystal, a constant electric field appears in the conductor proportional to the Poynting vector of this wave. The wave also creates new waves, whose frequency at $H_0 < c/\mu\pm$ (c the velocity of light, $\mu\pm$ carrier mobility) is linear on the wave vector and at $H_0 > c/\mu-$ is close to the frequency of helicoid waves. The present article limits itself to the case of an exciting wave frequency ω much less than the collision frequency τ^{-1}. The result of the presence of additional waves in the crystal is that when two waves are simultaneously incident on the crystal, with the first wave creating an electric field of sufficient magnitude, the second wave of lower frequency may pass through the crystal practically without damping. In addition, when the crystal which is in the strong magnetic field is struck by a wave which leads to the excitation of additional "photoelectric" waves, "combination" waves emerge from the crystal with the frequencies $\omega = p\tilde{\omega}$ (p = 1, 2 ...).

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_ 58 _

1/2   030   UNCLASSIFIED   PROCESSING DATE--20NOV70

TITLE--EXTERNAL CIRCUIT CURRENT OSCILLATIONS IN A SEMICONDUCTOR WITH
KADOMTSEV NEDOSPASOV INSTABILITY -U-

AUTHOR-(03)-GUREVICH, L.E., IOFFE, I.V., TURSUNOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(5), 1566-8

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SOLID STATE CIRCUIT, SEMICONDUCTOR CRYSTAL, CURRENT DENSITY,
OSCILLATION, ELECTRIC FIELD, INDIUM ANTIMONIDE, ELECTRIC IMPEDANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0378   STEP NO--UR/0181/70/012/005/1566/1568

CIRC ACCESSION NO--AP0151675
                         UNCLASSIFIED

2/2   030   UNCLASSIFIED   PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0131465
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   INTERACTION OF FLUCTUATIONS LEADS
  IN NONOHMIC CONTACTS TO VARIATIONS OF THE REAL PART OF THE CRYSTAL
  IMPEDANCE. NUMERICAL EVALUATIONS OF THE FIELDS AND FREQUENCIES WERE
  CARRIED OUT FOR INSB AT 77DEGREESK.   FACILITY: FIZ.-TEKH. INST.
  IM. IOFFE, LENINGRAD, USSR.

USSR

GUREVICH, L. E., and IOFFE, I. V.

"Excitation of Coupled Magnetic and Transverse Sound Vibrations in Metals and Semimentals"

Abstract: In a previous paper by the same authors [Fizika Tverdogo Tela, Vol 13, No 2, 1970] it was shown that increasing transverse oscillations of an electromagnetic field occur in semimetals and metals in a magnetic field on incidence of a sufficiently strong electromagnetic wave. In the present article it is shown that with a further increase in intensity of the incident wave coupled electromagnetic and elastic oscillations are excited. The case is limited to normal incidence of the wave and parallelness of the Poynting vector of the incident wave, the external magnetic field, and the wave vector of the excited oscillations.

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1/2   020   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--THEORY OF RADIATION EMISSION FROM CRYSTALS TRAVERSED BY A CURRENT
· -U-
AUTHOR-(02)-GUREVICH, L.E., IOFFE, I.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
  NR 6, PP 2047-2053
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INDIUM ANTIMONIDE, MAGNETIC FIELD EFFECT, INORGANIC CRYSTAL,
  MICROWAVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2226   STEP NO--UR/0056/70/058/006/2047/2053

CIRC ACCESSION NO--AP0125804
                           UNCLASSIFIED

CIRC ACCESSION NO--AP0125804

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LINEAR AND NONLINEAR THEORIES ARE DEVELOPED FOR MICROWAVE EMISSION FROM CRYSTALS TRAVERSED BY A CURRENT IN THE ABSENCE OR PRESENCE OF AN EXTERNAL MAGNETIC FIELD PARALLEL OR PERPENDICULAR TO THE CURRENT. THE SITUATION ENCOUNTERED IN EXPERIMENTS ON MICROWAVE EMISSION FROM INDIUM ANTIMONIDE IS CONSIDERED. IN A CURRENT CARRYING CONDUCTING MEDIUM THERE EXISTS A SPECIAL BRANCH OF ELECTROMAGNETIC FIELD TRANSVERSE OSCILLATIONS WHOSE EXCITATION LEADS TO EMISSION. IN THE ABSENCE OF AN EXTERNAL FIELD THE FREQUENCY IS LINEAR RELATIVE TO THE WAVE VECTOR; IN A STRONG MAGNETIC FIELD AN ADDITIONAL TERM WHICH IS QUADRATIC WITH RESPECT TO THE WAVE VECTOR ARISES. THE FREQUENCY AND CRITICAL VALUE OF THE CURRENT DENSITY ARE DETERMINED AND FOUND TO AGREE WITH THE EXPERIMENTAL VALUES. THE DEPENDENCE OF OSCILLATION AMPLITUDE ON CURRENT DENSITY IS DIDUCED. THE RADIATION INTENSITY IS CALCULATED AND IT IS SHOWN THAT IN A STRONG EXTERNAL MAGNETIC FIELD IT INCREASES IN ACCORDANCE WITH THE EXPERIMENTS. FACILITY: FIZIKO-TEKHNICHESKIY INSTITUT IM. A. F. IOFFE AN SSSR.

TITLE--INSTABILITY OF A WEAKLY INHOMOGENEOUS PLASMA WITH TWO SPECIES OF
   IONS IN THE ABSENCE OF A MAGNETIC FIELD -U-
AUTHOR-(03)-GUREVICH, L.E., VAGNER, I.D., IOFFE, I.V.

COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 1, P. 49-52 (JAN. 1970)

DATE PUBLISHED----JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--INHOMOGENEOUS PLASMA, PLASMA INSTABILITY, MAGNETIC FIELD
   EFFECT, ELECTRON MOBILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1792   STEP NO--US/0000/70/011/001/0049/0052

CIRC ACCESSION NO--AP0133697
                              UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0133697
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   INSTAIBLITY IS SHOWN TO BE
   POSSIBLE IN THE ABSENCE OF A MAGNETIC FIELD, IF THE ELECTRON MOBILITY
   DEPENDS ON THE COORDINATES.   FACILITY: USSR ACAD. SCIS.

UNCLASSIFIED

USSR

GUREVICH, L. E., and KATANOV, A. A., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR, Leningrad; Institute of Physics, Academy of Sciences AzSSR, Baku

"Generation of Transverse Waves in the Presence of a Strong Current and a Magnetic Field Parallel to It"

Abstract: The excitation of transverse waves in a conductor with the same concentration of electrons and holes is considered for the case in which a strong electric current J_z flows in it parallel to an external magnetic field H which is strong for carriers of both signs. The intrinsic magnetic field of the current is also considered strong. Under these conditions spontaneous excitations of intensifying transverse waves are possible. The ratio β of the outgoing flow of the energy of excited waves to the incident energy flow is calculated and it was found that $\beta \sim 4\sqrt{\omega H}/4\pi mec$. The fact that reflected waves are also amplified inside the medium before they are reflected from the opposite surface is not taken into account. Multiple scattering will occur as a result of this, and the yield coefficient will increase sharply.

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USSR

GUREVICH, L. E.; ROMAN, G. A. (Joffe Physics-Engineering Institute, USSR Academy of Sciences, Leningrad)

"Theory for Absorption of Sound in Ferromagnetic Dielectrics in Low Temperatures"

Leningrad, Fizika Tverdogo Tela; September, 1970; pp 2516-8

ABSTRACT: The absorption of sound in ferromagnetic dielectrics, related to the excitation of second sound of phonons and magnons, is studied. The mutual drag of quasi particles and their energy exchange are taken into consideration. It is shown that the absorption coefficient is proportional to the square of the frequency for frequencies ω less than some frequency ω_1 and larger than some other frequency ω_2; but in the interval between ω_1 and ω_2 it does not depend on the frequency, and in this interval the absorption coefficient γ is a nonmonotonic function of the temperature. It is shown, further, that the ratio γ/ω^2 decreases monotonically with an increase in the frequency for some temperatures and attains a maximum; then it decreases for others. Finally, substances for which $T_0 \gg T_c$ are considered. It is shown that when paramagnetic impurities are present, the absorption coefficient depends nonmonotonically on the concentration of the impurities; it has a maximum for some concentration proportional to the frequency, and this maximum value is also proportional to the frequency.

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TITLE--PROPAGATION OF SHOCK WAVES IN A MEDIUM OF DECREASING DENSITY -U-

AUTHOR-(02)-GUREVICH, L.E., RUMYANTSEV, A.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 4, PP 1395-1399
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SHOCK WAVE PROPAGATION, SHOCK WAVE FRONT, SPECIFIC DENSITY, SHOCK WAVE INTERACTION, STAR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1567   STEP NO--UR/0056/70/058/004/1395/1399

CIRC ACCESSION NO--AP0106313
                    UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FRONT OF A SHOCK WAVE
PROPAGATING IN A MEDIUM OF DECREASING DENSITY IS UNSTABLE WITH RESPECT
TO PERTURBATIONS, THE WAVELENGTHS OF WHICH ARE MUCH SMALLER THAN THE
INHOMOGENEITY LENGTH AND IN PARTICULAR SMALLER THAN THE HEIGHT OF A
NONUNIFORM ATMOSPHERE. AS A RESULT THE WAVE FRONT SEPARATES INTO SMALL
REGIONS, THE DIMENSIONS OF WHICH IS SLIGHTLY SMALLER THAN THE
INHOMOGENEITY LENGTH. THESE SMALL REGIONS MOVE IN VARIOUS DIRECTIONS,
COLLIDE AND PRODUCE A DIFFUSION PATTERN OF THE SPREADING WAVE FRONT.
IN THE CASE OF A STAR THE TIME OF INSTABILITY DEVELOPMENT IS MUCH
SMALLER THAN THE TIME FOR DIFFUSION OF THE FRONT TO THE SURFACE. IT IS
POINTED OUT THAT AN EXPLOSION OF SUCH DURATION MAY OCCUR THAT THE
TRAILING EDGE OF THE SHOCK DISTURBANCE CANNOT OVERTAKE THE LEADING EDGE
BEFORE THE LATTER LEAVES THE SYSTEM AND THERE WILL NOT BE ENOUGH TIME
FOR THE RIEMANN SHOCK WAVE TO BE PRODUCED. .   FACILITY: FIZIKO
TEKHNICHESKIY INST. IM. A. I. IOFFE, AN SSSR.

Thermomechanical Treatment

USSR   UDC: 621.789-977:669.14.018.254

SMIRNOV, M. A., SHTEYNBERG, M. M., GUREVICH, L. G., FILATOV, V. I., SHILKOVA,
T. S., Chelyabinsk Polytechnic Institute

"Hardening of Stamp Steels During High Temperature Thermomechanical
Treatment"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 29-31.

Abstract: The use of high temperature heat treatment and mechanical working
can increase the mechanical properties of many tool steels. This article
studies the influence of this treatment on stamp steels for hot deformation.
Steels studied included types 5KhNV, 4Kh5MFS, 4Kh4M2VFS (DI22) and 3Kh2V8F,
the latter three of which show a tendency toward dispersion hardening.
Billets 19 x 19 mm, after austenitizing, were rolled in two passes at dif-
ferent temperatures with reductions of 37%, then quenched in oil. The heat-
ing temperature for the high temperature heat treatment and mechanical working
was 850° C for type 5KhNV, 1040° C for type 4Kh5MFS, 1070° C for type 4Kh4M2VFS
and 1100° C for type 3Kh2V8F. All steels were then tempered at 450-650° C.
The tensile strength, impact toughness and thermal stability were determined.
It was found that high temperature plastic deformation accelerates the

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USSR

Smirnov, M. A., Shteynberg, M. M., Gurevich, L. G., Filatov, V. I., Shilkova,
T. S., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 9, 1973, pp 29-31.

breakdown of austenite in all the steels tested, manifested as a decrease in
the incubation period and an increase in the breakdown rate. However, the
incubation period of the intermediate conversion is increased, the rate and
completeness of conversion decrease. Thus, the hardenability of the steels
is increased overall. Only the steels with tendencies to dispersion hardening
show high stability of thermomechanical hardening during tempering. A signifi-
cant increase in strength properties of these steels at room temperature and
elevated temperatures is observed after deformation below the Ac_3 point. High
temperature heat treatment and mechanical working decrease the brittle-rupture
tendency of 4Kh5MFS and 4Kh4M2VFS steels only after deformation at 1000° C.

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USSR   UDC 621.039

ASHIROV, E. G., GUREVICH, L. G., and ZINOV'YEV, N. F.

"Application of a Polynomial Approximation of Fast Neutron Spectra for
Analysis of the Results of the Activation of Threshold Detectors"

V sb. Radiats. dozimetriya i spektrometriya ioniziruyushch. izluch. (Radia-
tion Dosimetry and Spectrometry of Ionizing Radiation -- Collection of
Works), Tashkent, "Fan," 1970, pp 230-234 (from RZh-Fizika, No 4, Apr 71,
Abstract No 4V578)

Translation: The fast neutron spectrum in a vertical channel of the VVR-S
reactor was investigated with the aid of a set of six threshold indicators
of In^{115}, Ni^{58}, Zn^{64}, Mg^{24}, and Al^{27} (n, p and n, α reactions). The poly-
nomial approximation of the spectrum was used: $\Phi(E) = a_1 e^{-3} + a_2 e^{-2} + \dots$
$a_6 e^2$. The dependence of the reaction cross sections on E was also approxi-
mated by polynomials. This representation of the spectrum was unsuccessful,
since negative values of $\Phi(E)$ were obtained in the region $E = 1.5-3$ Mev.
There were considered 22 combinations of the polynomial representation of
the spectrum, the function $\Phi_0(E)$ describing the fission spectrum, and the
exponential function $c(E) = exp(E - \sqrt{2E})$. Considerable discrepancies were

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